

ABSTRACT

Aim:

The aim of the present study is to evaluate the rate of space closure, arch dimensional and axial inclination changes between interactive, passive self-ligating bracket system and conventional bracket system using CBCT and dental casts

Materials and Methods:

Eighteen consecutive patients who met the selection criteria were included in the study from a pool of patients satisfying the following inclusion criteria:

Patients between 10 to 25 years old of either gender with Skeletal Class I malocclusion warranting all 4 - first bicuspid extraction during start of the treatment and who have completed alignment and leveling phase of orthodontic treatment along with pre- treatment CBCT 's.

The patients were randomly divided into three groups of six each- Group A, B and C treated with SLB - (Interactive, Passive), and Conventional Brackets. Once the level slot alignment is achieved, 19x25 stainless steel wire should fit passively into the bracket slot and retraction started using soldered hooks distal to laterals and by engaging NiTi closed coil springs (150 gm). CBCT images were taken post treatment and a 3D program Dolphin software (version 11.0) used to assess the arch dimensional changes in transversal plane and buccal bone thickness before and after treatment. Lateral cephalograms were generated from CBCT images through Dolphin 3D imaging software to

assess the axial inclination changes associated with the bracket systems.

Rate of retraction was assessed in models by dividing the time required to complete space closure. This was recorded in millimetres per interval (4 week period). Measurements were performed from casts with the help of Vernier Calliper with accurate to 0.01mm.

Results:

There was no statistically significant difference in the time required for space closure with the Interactive, Passive SLB and conventional bracket system. No statistically significant differences were found between the transversal arch dimensional changes between the groups. There were differences in axial inclination changes but the changes were not statistically significant. In the transverse plane, no statistically significant difference was found in between the SLB and the conventional bracket. On evaluation of the buccal bone thickness pre and post treatment, there were no statistically significant changes.

Conclusions:

Our study has concluded by stating that there are no changes in rate of space closure, arch dimensional and axial inclination changes between self – ligation and conventional bracket systems.

Keywords:

SELF – LIGATING BRACKETS [SLB], CONVENTIONAL BRACKETS [CLB], CONE BEAM COMPUTED TOMOGRAPHY [CBCT]